

isc N-Channel MOSFET Transistor

IRF121

DESCRIPTION

- Drain Current  $I_D=8A@ T_C=25^{\circ}C$
- Drain Source Voltage-  
:  $V_{DSS}= 60V(\text{Min})$
- Static Drain-Source On-Resistance  
:  $R_{DS(on)} =0.3 \Omega (\text{Max})$
- Nanosecond Switching Speeds

APPLICATIONS

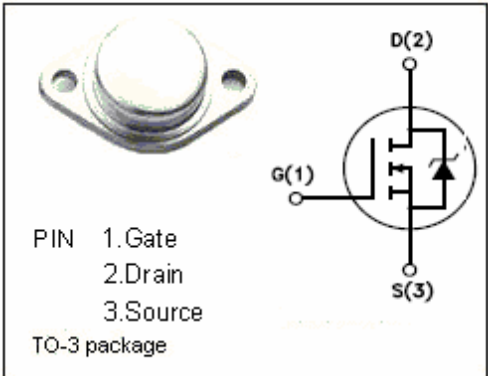
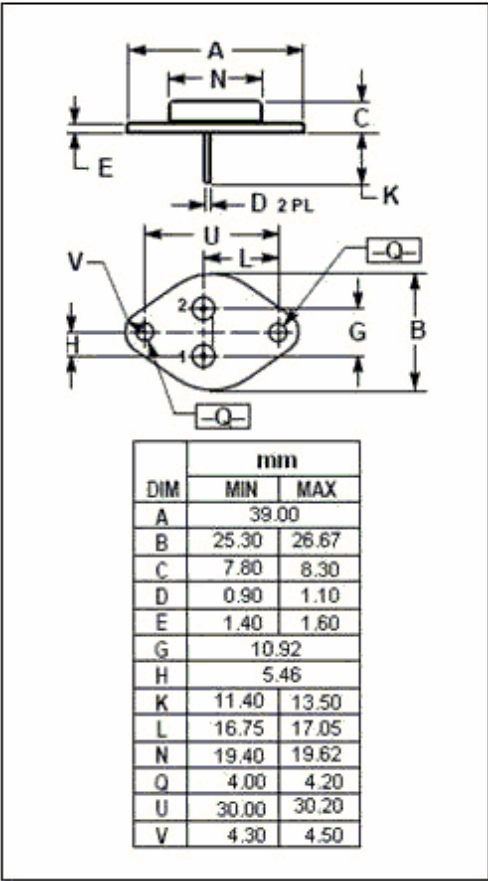
- Switching power supplies
- Motor controls,Inverters and Choppers
- Audio amplifiers and high energy pulse circuits.

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )

| SYMBOL    | ARAMETER                                   | VALUE    | UNIT        |
|-----------|--------------------------------------------|----------|-------------|
| $V_{DSS}$ | Drain-Source Voltage ( $V_{GS}=0$ )        | 60       | V           |
| $V_{GS}$  | Gate-Source Voltage                        | $\pm 20$ | V           |
| $I_D$     | Drain Current-continuous@ $TC=25^{\circ}C$ | 8        | A           |
| $P_{tot}$ | Total Dissipation@ $TC=25^{\circ}C$        | 40       | W           |
| $T_j$     | Max. Operating Junction Temperature        | 150      | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                  | -55~150  | $^{\circ}C$ |

THERMAL CHARACTERISTICS

| SYMBOL       | PARAMETER                              | MAX  | UNIT          |
|--------------|----------------------------------------|------|---------------|
| $R_{th j-c}$ | Thermal Resistance,Junction to Case    | 3.12 | $^{\circ}C/W$ |
| $R_{th j-a}$ | Thermal Resistance,Junction to Ambient | 30   | $^{\circ}C/W$ |



## isc N-Channel Mosfet Transistor

## IRF121

• ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ )

| SYMBOL        | PARAMETER                        | CONDITIONS                                                                        | MIN | TYPE | MAX       | UNIT          |
|---------------|----------------------------------|-----------------------------------------------------------------------------------|-----|------|-----------|---------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage   | $V_{GS}=0$ ; $I_D=250\mu\text{A}$                                                 | 60  |      |           | V             |
| $V_{GS(TH)}$  | Gate Threshold Voltage           | $V_{DS}=V_{GS}$ ; $I_D=250\mu\text{A}$                                            | 2   |      | 4         | V             |
| $R_{DS(ON)}$  | Drain-Source On-stage Resistance | $V_{GS}=10\text{V}$ ; $I_D=4\text{A}$                                             |     |      | 0.3       | $\Omega$      |
| $I_{GSS}$     | Gate Source Leakage Current      | $V_{GS}=\pm 20\text{V}$ ; $V_{DS}=0$                                              |     |      | $\pm 100$ | nA            |
| $I_{DSS}$     | Zero Gate Voltage Drain Current  | $V_{DS}=60\text{V}$ ; $V_{GS}=0$                                                  |     |      | 250       | $\mu\text{A}$ |
| $V_{SD}$      | Diode Forward Voltage            | $I_S=8\text{A}$ ; $V_{GS}=0$                                                      |     |      | 2.5       | V             |
| $C_{iss}$     | Input Capacitance                | $V_{DS}=25\text{V}$ ;<br>$V_{GS}=0\text{V}$ ;<br>$f_T=1\text{MHz}$                |     | 450  | 600       | pF            |
| $C_{rss}$     | Reverse Transfer Capacitance     |                                                                                   |     | 50   | 100       |               |
| $C_{oss}$     | Output Capacitance               |                                                                                   |     | 200  | 400       |               |
| $t_r$         | Rise Time                        | $R_{GS}=50\Omega$<br>$I_D=4\text{A}$ ;<br>$V_{DD}=50\text{V}$ ;<br>$R_L=50\Omega$ |     | 35   | 70        | ns            |
| $t_{d(on)}$   | Turn-on Delay Time               |                                                                                   |     | 20   | 40        |               |
| $t_f$         | Fall Time                        |                                                                                   |     | 35   | 70        |               |
| $t_{d(off)}$  | Turn-off Delay Time              |                                                                                   |     | 50   | 100       |               |